

## AMENDMENT

### In the Claims:

Please amend the claims, without prejudice, as follows:

1. (Currently Amended) A method to predict potential athletic performance in a human comprising:
  - a) analyzing a sample obtained from the human for the presence of one or more genetic variations in  $\alpha$ -actinin-3 (ACTN3) gene;
  - b) determining whether [[a]] the human has at least one copy of a 577R allele at the locus encoding amino acid number 577 of the  $\alpha$ -actinin-3 (ACTN3) protein; and
  - [[b]]c) predicting the potential sprinting, strength, or power performance of the human, the presence of at least one copy of the 577R allele being positively associated with sprinting, strength, or power performance.
- 2-3. (Canceled)
4. (Previously Presented) The method of claim 1, further comprising screening the human for a 1747 C>T single nucleotide polymorphism (SNP) in the ACTN3 gene.
5. (Previously Presented) The method of claim 1, which comprises genotyping the human at the ACTN3 locus.
- 6-9. (Canceled)
10. (Previously Presented) The method of claim 1, wherein the presence of a 577RX genotype is positively associated with potential sprinting or power performance in female individuals.
11. (Canceled)

12. (Previously Presented) The method of claim 1, further comprising measuring the amount of ACTN3 protein present in the human's skeletal muscle.

13. (Original) The method of claim 12, wherein the amount of ACTN3 protein is measured using an antibody specific for the ACTN3 protein.

14. (Previously Presented) The method of claim 1, further comprising measuring the amount of ACTN3 messenger RNA (mRNA) expressed in the human's skeletal muscle.

15. (Previously Presented) The method of claim 4, further comprising identifying the 1747 C>T SNP alleles in the human's genomic DNA by DNA sequencing, allele-specific hybridization, allele-specific amplification or restriction fragment length polymorphism analysis.

16. (Previously Presented) The method of claim 4, further comprising screening the human for the presence of one or more additional SNPs in the ACTN3 gene.

17. (Canceled)

18. (Previously Presented) The method of claim 1, further comprising screening the human for the presence of one or more genetic variations in at least one other gene.

19-23. (Canceled)

24. (Previously Presented) The method of claim 1, further comprising screening the human using a test selected from the group consisting of VO<sub>2</sub> maximum, anaerobic threshold test, Wingate test, critical power, resting metabolic rate, body composition, speed testing, power testing, strength testing, flexibility testing, muscle biopsy, fast twitch fiber test and slow twitch fiber test.

25. (Previously Presented) The method of claim 1, further comprising selecting the human's training program based on the presence of at least one copy of the 577R allele.

26-28. (Canceled)

29. (Previously Presented) The method of claim 1, further comprising selecting the human's sprint/power type sport or event on the basis of the presence of at least one copy of the 577R allele.

30-32. (Canceled)

33. (Currently Amended) The method of claim 1 ~~which comprises, wherein analyzing the sample further comprises~~ analyzing DNA in a of the sample ~~taken from the human.~~

34. (Currently Amended) The method of claim 1, wherein the ~~577R~~ 577R allele is a SNP.

35-40. (Canceled)

41. (Canceled)

42. (Previously Presented) The method of claim 1, wherein the presence of a 577RR genotype is positively associated with potential sprinting, strength or power performance in males.

43. (Previously Presented) The method of claim 1, wherein the presence of a 577RR genotype is positively associated with potential sprinting, strength or power performance in females.

44. (Previously Presented) The method of claim 1, wherein the presence of a 577RX genotype is positively associated with potential sprinting, strength or power performance in females.